

OCEAN POLLUTION, CONSERVATION, AND SOLUTIONS: A PROPOSAL FOR AWARENESS

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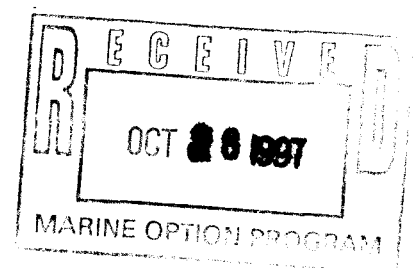


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ABSTRACT

A summer experience with an ocean awareness program conducted by the United States Coast Guard in Hawaii, and the observation of a number of other organizations and their public presentations promoting marine environmental protection helped me gain a number of valuable insights.

- Our oceans contain a much more extensive and complex ecosystem than most people realize.**
- This system is being degraded by man's activities and careless waste disposal much more than most people realize.**
- Global environmental quality is much more dependent on the health of our oceans than most people realize.**
- Present marine protection acts and sanctuaries will have little value without more wide spread public awareness and support.**
- Ocean awareness outreach programs targeted toward school age youth will be a very effective means to increase long term public awareness and support.**

This experience also provided me with a wealth of valuable materials and techniques to use in giving a public presentation. I am now much better prepared to:

- evaluate the resources available in my home region of Monterey Bay, California,**
- design an outreach ocean awareness program targeted toward school age youth, and**
- propose and promote implementation of a program.**

INTRODUCTION

Most people's view of the planet stops at the sea coast. Those who do look beyond the seashore tend only to see a vast blue plain from where an occasional dolphin or whale may erupt or an endless reservoir of sea food for their dinner plate. Few recognize the incredibly rich and diverse ecosystem that exists in our oceans. Nor do they have any awareness of how much the health of that marine habitat impacts the quality of life on land. Further there is little public recognition of the serious damage being done by man's activities and careless disposal of waste.

It is not the purpose of this project however, to enumerate, document, or find solutions to the various threats to our ocean habitat. But the recent creation of the Monterey Bay National Marine Sanctuary has also created the need for the people of my home region to become more aware of the wonders of this neighboring ocean treasure and the importance of its protection. The mere designation of a sanctuary will accomplish little without the support of an aware and supportive public.

This project was begun with a vague belief that one of the more effective ways to increase this awareness would be some kind of program that really reaches out to the kids of the area.

A look at current, youth targeted, ocean awareness activities in the area reveals that, while the Monterey Bay Aquarium provides the community with excellent in house programs, there appears to be little community wide experiential outreach efforts. There appears

to be no established link between schools and outside programs and, thus, there is no beneficial feedback and follow up.

It, therefore, became the intent of this project to see what kind of ocean awareness program might be created that would reach out to elementary and secondary school children.

Upon learning that the United States Coast Guard conducted a program in Hawaii called Sea Partners, which seemed to be similar to what I was interested in, I sought to become involved as a research experience. This report relates the results of that experience.

MY APPROACH

My initial goal with this project was to get background on outreach programs and to put together a proposal to create a program that others could use to teach about ocean pollution, conservation, awareness, and what individuals can do about these problems.

By observing and participating in the United States Coast Guard (USCG) Sea Partners and similar programs and their organizations during my two months in Hawaii, I hoped to learn what works and what doesn't, how to approach people with ideas, and how to feel comfortable with creating programs that others can work on. Most of all I hoped this project would teach me patience and the ability to plan ahead and to organize.

This is a program I hoped to take back and present to the Monterey Bay community. The area has a wonderful aquarium and has recently been designated a National Marine Sanctuary. I feel that an educational program for the schools would greatly enhance students' awareness of what they can do to help preserve the ocean environment. I would like to eventually set up a program at my college, CSUMB, that would provide volunteer presenters who would go to the area's elementary and secondary schools.

This project would be the first step in a long process that would lead to the accomplishment of some of these goals.

There is currently no USCG Sea Partners, or any other similar program in the Monterey Bay area. The USCG Sea Partners program is very strong in Hawaii. I am hoping to use this program as an

example. The programs that are in Monterey, such as the Monterey Bay Aquarium, do not serve as a centralized location for community awareness, and all other efforts are spread out. I would like to have this become a community program, incorporating many groups.

When I first began working on this project I was not quite sure what to expect. I talked to a lot of people who were very helpful and informative. In explaining to them what I was trying to do I began to discover what I was truly looking for. So most of the information they gave me started and actually directed my project. I went to a lot of presentations and outreach programs looking at what they were doing, and how they went about doing it. I observed a number of educational programs aimed at young children. (see Appendix B for detailed listing)

LEARNING FROM HAWAII

While observing organizations and their presentations in Hawaii, I learned that Hawaii is farther along than California in recognizing its interdependence with a healthy marine environment. It is also much more active in promoting ocean awareness in its people.

Some of the key organizations, I gained much valuable information from, include the following: (for a complete listing see appendix A)

Center for Marine Conservation

Non Point Source Pollution Program

Smithsonian Institution

Think Earth Distribution Office

United States Coast Guard Sea Partners Campaign

Bishop Museum

A detailed description of some of my observations are contained in later chapters, but here are some of the main points I learned from different experiences.

Things to Include in Programs

- Have goal/ get facts/ research
- target the audience
- community involvement
- flexibility
- funding, structure, transportation
- have a plan and implement it
- address fears
- manage staff

- start small

Things to Include in Presentations

- have own style
- projection
- enthusiasm
- Credibility
- have a focus
- address the audience
- avoid over emotional and negativism
- positive solutions
- importance of focus
- stick to topic
- follow up

Sea Partners

David Kokata

- lots of visuals (such as videos, props, and games)and personal stories
- sincere and knowledgeable information
- stories and Anecdotes weaved into facts
- stay with audiences level of knowledge
- repeat take home messages
- incorporate biology, social, and physical impacts
- humans are not alone in universe
- different ways of incorporating information into a game
- enhance learning by questions
- amount put in is what is given back by the kids
- how to present for sea partners
- learn to present for sea partners
- learn your own style

Ms. Ingrid

- integration of current concepts
- packet of information to prepare teachers
- use fun follow-ups to solidify learning

Tim Lucas

- know your audience and target them
- explain your program and include your audience, stress it is their property too
- What's the problem? Who's fault is it (What's causing it) ?
What can we do about it?

- asking the audience for ideas?
- stress key words
- three R's
- interaction with other things
- encourage active participation in the solution and ways not to be the problem
- command of information
- importance of making it fun
- important to have method and focus on it
- leaving things as they are
- addressing water safety and animal handling
- safety, fun, education

Bishop Museum

- tying in presenters to exhibits
- well thought out planning
- clear and concise points

Teachers' Workshop

Mike Levad

- storytelling
- importance of knowing and respecting people's cultures
- stories, if told consciously, can be a cultural bridge or age bridge
- listening
- create your own style
- deliberate presentations
- love for and desire to do the project
- reconstruct a concept
- teach people how to look for more

Ocean Planet Lecture Series

Dr. John Bardach

- importance of selling off areas of protection and management
- knowing and understanding natural cycles
- lack of enthusiasm is mirrored in audience

Dr. Kim Holland

- communicating with jargon-lack of comprehension
- abstaining from it or explaining
- only way information is important is to get it into the public's hands
- avoid over emotional negativism

- stick to a theme
- find positive solutions
- stress ability to make difference, not threaten death and destruction
- avoid plugs for personal interests

Dr. Richard Pyle

- importance of explaining basic concepts
- using lots of visuals
- repeating the question
- explaining jargon
- positive and informative
- fun

Sea Life Park

Susie Gardener

- hands on and visual
- volunteer programs that go into schools work well
- stressing the need for conscious awareness
- community involvement requires involvement in community
- have patience

Department of Land and Natural Resources

Sam

- not just having a plan but being able to implement the plan
- identifying the goal, getting the facts, researching the background
- knowing money backers
- knowing what people's fears are and how to address them
- having a clear idea of direction you need to go
- what laws are
- how to communicate needs and to whom the needs are being communicated

Waikiki Aquarium

Mark Heckman

- the smaller the child the shorter the program
- made a point of over fishing with "Don't take last one. Don't take the biggest or smallest one. Take the common and right in between".
- misnomer "education is supposed to be entertainment, but that's not the way the world works"

Carol Hopper

- when starting a program pay attention to funding

- managing staff be careful of burn out
- structure transportation
- allow room for flexibility
- start small progress larger

RELATED ENVIRONMENTAL LAWS

Laws protecting the marine environment are not generally known by the public. Some of the more important ones are:

Shore Protection Act of 1988

Deepwater Port Act of 1974

Intervention On the High Seas Act of 1974

Nonindigenous Aquatic Nuisance Prevention Control Act of 1990

Outer Continental Shelf Lands Act (OCSLA), as amended 1978

Hazardous Materials Transportation Act of 1974 (HMTA)

International Safe Container Act of 1977

Marine Mammal Protection Act of 1972

U.S. Marine Plastic Pollution Research and Control Act 1987

Although, these laws exist there is not a lot of effective enforcement by established agencies. There are however a number of public interest groups such as:

Center for Marine Conservation

The Society of the Plastics Industry, Inc.

Clean Ocean Action

Earth Island Institute

Oceanic Society

Smithsonian Institution

A lot of protection comes from these “watchdog” groups through creating public pressure on governmental agencies charged with enforcement such as the United States Environmental Protection Agency and NOAA/National Marine Fisheries Service. Other times they generate public pressure directly on polluters and sometimes resort to litigation.

Most of the presentations I have seen did not really focus on the laws very much. It is mentioned that they exist but for the most part are not emphasized. However a law that the Coast Guard, Sea Partners Program does focus on and uses as a basis for their presentation is the MARPOL 73/78 Annex V.(the international Marine Pollution Treaty Annex which specifically deals with the disposal of garbage into the sea).

Ships are required by the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and U.S. law and regulations to comply with the operational waste discharge requirements set out in the various annexes of MARPOL 73/78. The five annexes set discharge limits for the following harmful substances:

Annex I: Oil

Annex II: Noxious liquid substances in bulk

Annex III: Harmful substances carried in packaged form

Annex IV: Sewage

Annex V: Garbage and all other ordinary ship- generated solid and liquid waste not covered by Annexes I, II, III, and IV.

The United States is signatory to MARPOL 73/78, Annexes I, II, III, and V. As of 1/94 there are 65 countries signed on to Annex V.

Following these guidelines will improve the efficiency and effectiveness of shoreside waste management programs and will also help prevent pollution of our marine environment.

PRESENTATIONS AND WORKSHOPS

In a teachers' workshop, sponsored by the Bishop Museum, called "Teaching with Storytelling and Teaching with Objects" Mike Levad, an Education Director at the Museum, presented many interesting ideas. This workshop was mostly about different styles of teaching and methods of reaching the desired audience with storytelling and objects. It was amazing this workshop was what I was looking for and was what I needed for this project. It was not what I expected but it certainly was a pleasant surprise.

For the first part he talked about the ways and methods of presenting. Mike stressed that stories had a way of getting people to remember the tale. He suggested a variety of ways to play games and get the group comfortable with storytelling. We discussed the importance of knowing and respecting peoples' cultures and how important it is to be conscious of the fact that different cultures react differently and that stories if told consciously can be a cultural bridge or even an age bridge. When retelling a story it is important to listen to what matters and then create your own style of telling.

As we began to discuss what was really important in presenting, we came to the conclusion that many of the most entertaining speakers didn't have any of the qualities we had listed as being important to a good speaker. When we really looked at what was important, it was the underlying themes in all of these stories; the presentation has to be deliberate. It is human nature to be perfunctory with items that are not liked and an audience can tell

this. The love for the subject can be seen and that is something that is important.

One method is to reconstruct the concept for the audience. Teaching people how to really see what they are looking at and learn how to look at it is what is important. Showing someone how much more there is to an exhibit, for example, can help a person enjoy their experience and maybe gain some new knowledge.

“Reaching” people is all in the presentation. Mike did a very effective presentation and reached the audience. Not only did he show his love for marine science and teaching, but his enthusiasm spread to the entire workshop.

In another presentation at the Bishop Museum, Dr. John Bardach, Bishop Museum biologist, spoke on “Aquaculture in the 21st Century.” He presented the issues of the history behind the Oahu area. He used a lot of visuals to show why growing plants and animals in water will be a necessity to preserve our natural resources. He also discussed the importance of setting off areas of protection and management. There were a lot of references to the natural cycles for reefs and their growth and that proper management could protect these valued habitats. He brought up many of the issues, (over-population, by catch, aquaculture), that can be found in “Fishing for Solutions,” an exhibit at the Monterey Bay Aquarium. For only having an hour, his presentation had many good points but they could have been improved upon. One negative aspect was the presentation lacked the enthusiasm for the subject necessary to excite the audience. It seemed as if Dr. Bardach was perfunctorily giving the speech.

Throughout many of the following lectures at the Bishop Museum I began to see the importance of good speakers and some techniques which were very effective at reaching the audience. I also saw techniques that could have been left out and things I need to avoid when putting together a presentation of my own.

In a lecture called "Follow that Fish! Shark and Fish Tracking" presented by Dr. Kim Holland, research biologist at the Hawaii Institute of Marine Biology, some of the issues of communication came up. Dr. Holland's love of his research on tracking fish and sharks using sonic transmitters, was very obvious in his presentation which made it very interesting. I found him to be a little hard to follow because he used a lot of jargon that was unfamiliar to me. This made me realize the importance of abstaining from the use of jargon and vernacular in presentations unless the group is known to understand those terms. Alternately one could make it clear that the vernacular were being used and maybe including an explanation for what those terms meant.

Dr. Holland's presentations showed the different methods of tagging and tracking fish. One of these was sonic telemetry using a system like a pager. He brought up the point that most of the information on fish populations is from fisherman. The sonic telemetry uses transmitters that are placed on the fish and tracks their movement in the ocean. The scientists get more information on the fish populations, which will help with management. Dr. Holland brought up the fact that most research is interconnected and the only way this information can be useful is to get it out into the public's hands.

In one of the presentations at the Bishop Museum, "Creating Sustainable Communities," the guest lectures Puanani Burges and Eric Enos, from the Waianae community, gave very emotional presentations about the Hawaiian community. They are part of a group of Hawaiians trying to restore the old customs. Although I was not very happy with this presentation because of the negativism, I realized how important it is to me not to leave the audience with a hopeless feeling, but to use positive, action oriented speech to provoke the need to get up and move. This is not because you think that we are all going to die and we have to protect the environment, but because we have the ability to make a difference and "Turn the Tides" to use a quote from Fishing for Solutions, an environmental impact exhibit at the Monterey Bay Aquarium. Overall I don't think that this presentation belonged with the rest of the Ocean Planet Lecture Series. Although it was supposed to be about aquaculture, I felt like that was only thrown in as a side thought.

A presentation by Dr. Richard Pyle, Staff member at the Bishop Museum, called "Diving into the Twilight Zone," recaptured his expedition to the island of Palau. The twilight zone is an area below the lighted portion of the oceans between two hundred and fifty to five hundred feet. These areas had never been explored by scientific scuba divers. He explained the basic concepts of scuba diving, and his specific dives, using lots of visuals. I found Dr. Pyle to be a very interesting and eloquent speaker. He repeated the questions out loud so everyone else could hear them, making sure to include everyone. Richard was very positive and informative; he loved his work. He explained all of the jargon and even explained some of the "basic

concepts,” so that those who did not know were able to follow the talk and those who did didn’t notice. He was very good and a dynamic speaker it was fun to listen to him.

I thought the Bishop Museum did a very good job at tying the presenters into the exhibits. Their planning was well thought out and very effective. On the times that I looked through the exhibit I found them clear, concise, and very interesting. Many of the exhibits included interactive visuals that made the visitor think and presented the more relevant issues, such as “Seacrets” a check stand counter with many different common foods and grocery items and the elements in them that came from the sea. Some aspects showed medicines from the sea, fish markets, five human causing elements affecting the ocean environments, different features from the Deep sea adventures at the Island of Palau, and even presented the issues of El Nino through a demonstration of the tracking of Nike tennis shoes and rubber duckies that were lost from ships. They even brought the issues close to home with old styles of Hawaiian fishing. The thoughts on interactive teaching styles that went into this exhibit needs to go into an outreach program.

Sea Partners Campaign

The Sea Partners Campaign is a nationwide outreach program that has been in operation since 1994. It is part of the Marine Safety and Environmental Protection Office programs. It is intended to raise the public's awareness of marine pollution issues and motivate public conservation of the marine environment. It is an ongoing effort to educate the public about the issues of marine environmental protection and bring about improved compliance with the regulations by reaching out to students in grades kindergarten through 12th grade. The program can also be presented to recreational boaters, private groups, environmental organizations, and businesses in the maritime industry.

I have observed David Kokata, Senior Chief Petty Officer, U.S. Coast Guard, during several of his presentations at elementary schools. In one instance he gave a presentation on pollution to Ms. Ingrid's third, fourth, and fifth grade classes. David used a lot of visuals and a lot of personal stories both of which worked very well. The use of videos, props, and games causes the audience to respond to him. Although David used everything from his head and was not all that well structured, he was sincere and very knowledgeable with his information. He used stories and personal anecdotes weaved into the facts. The facts were not heavy, but they were structured for the audiences' level of knowledge. David stressed and repeated the lines he wanted the class to walk away with. He also incorporated the animals' life styles and how everything is affected

by the situation. Using this method he was able to stress the fact that humans are not alone in this universe.

Ms. Ingrid mentioned that one of the biggest things that helps both the students and the teachers is integration. Integrating the concepts that the students are learning helps them relate and it helps stress the teacher's point. Having a general theme also helps give the teacher something to work from. Ms. Ingrid also stressed that if you have a packet of information to give the teachers before the presentation, they can better prepare their class.

An ocean poster contest was put into place after our presentation. The students were asked to make a poster that showed one way they could save our oceans. I was the judge for these posters and it was amazing to me to see the effort of most of the students. You could also tell they had learned a lot from our presentation because of the things and ideas they involved in their pictures. Some of the ideas they expressed were: "Dispose of Plastic Bags for Turtles Think They are Jellyfish, Cut Plastic Soda Can Holders So Seals don't Use Them as a Choke Necklace, Don't Use Nets that Catch Our Turtles and Dolphins," and several more great titles.

In a class at the Iolani School, David encouraged me to create a web of life game. I used a ball of yarn and had the students in a circle to illustrate the food web. They would select an animal hold onto the yarn, and then the next student would pick an animal that was eaten by that animal. After everyone had an animal I would take out just one animal and show how each other animal is affected by the loss of that one animal. When the entire web collapsed because of one environmental stress, the students looked up from the

collapsed web and when I asked them what happened they looked at me with an enlightened amazement and said "We all died." I didn't realize how effective even a simple concept like that could be.

In Ms. Ingrid's second summer session she invited us back into the classroom. I gave part of one of the Sea Partners presentations, using plastic hazards to marine life, and it amazed me how fragile the attention of the kids can be. The energy level and the love for the subject had to be high or the students did not feel required to pay attention. The group gave me as much attention as I gave them effort. I had a lot of fun giving the presentation, and afterwards Ms. Ingrid and David both said they were impressed for my first time. I realized though that I have a lot to learn.

In order to get a better idea of the Sea Partners program I observed other members of the program. Tim Lucas, Assistant Director for summer school at Punahou School, is also a Sea Partners presenter. I attended one of his Sea Partners presentations for a third grade elementary class at Punahou school. He used many of the same materials that David Kokata had used. Mr. Lucas gave a very good and informative presentation, but it might have been aimed at an audience a little older than the one it was given to.

He started off by explaining the program and asking for help. He showed them a video and gave them things to look for: What is the problem? Who's fault is it? What can we do about it? He involved the kids by making them give ideas about what he was discussing and looking at the world through their eyes. He used the vocabulary and jargon letting the kids know they would hear these terms again,

stressing environmental words such as decomposes, biodegradable, and the three R's: reduce, reuse, and recycle.

He also addressed the issue of entanglement by using puppetry and rubberbands to explain the inhibiting problems caused by plastics to these animals. He stressed that humans can help. Although we are the problem, we are also the solution. He helped the kids find solutions on what we can do as individuals, such as not littering. He stressed that he was not saying don't enjoy our conveniences, just be smart about it.

As I watched his presentation I was impressed at how organized it was and his command of what he was talking about, but in the midst of it I watched the struggle he was having with the attention of the kids. It might have just been the day or something like that, but the subject matter might have been a little above their heads. It is really important to have a method and focus when giving a presentation. Even when an audience is difficult to deal with flexibility and attempt to adapt it to their level will generally be appreciated.

I visited later with Mr. Lucas in a presentation at the tide pools. He asked the kids to find the animals, and he explained the importance of leaving things how you found them. The tide was really high so it made it difficult for the kids to get into the water. I didn't like how the animals kept being removed from the water; it put a lot of stress on the critters. The people that were worst about disturbing the habitat were the adults. Safety and common animal handling procedures were not taught and they should have been. It would have been a better lesson in teaching about the oceans than

just showing them how to enjoy it. Enjoyment should not come at the risk of the animals or the humans safety.

I am thinking one of the most important things in a presentation for promoting action is an activity which gets people up and moving. Fun, yet serious stories are highly effective at captivating and educating an audience. Personal stories promote a sense of personal knowledge. A big part of helping students to become excited about the information is to get them involved in the activity.

OUTSIDE INTERVIEWS

After observing many different educational styles I decided to look into different types of outreach programs. I researched some of the community organizations and found several that had some form of an environmental awareness program.

One of the main things I learned is that the government, even when dealing with the people in charge, is about jumping through hoops and being able to both communicate and support your theories. People won't listen and respect what you have to say unless you have researched and can prove what you are talking about. It takes a lot of hanging out and basically doing nothing to get a few facts and really pertinent information but if you play the game it makes the people respect what you have to say more.

I visited the education department at the Sea Life Park where I met Susie Gardener, the Education Assistant. She was very friendly and nice. One of her programs goes out into the schools. They train their volunteers to memorize a certain script and they go out to the schools to teach a specific topic. Her department works with the Sea Life Park but they are going to become a non profit organization in order to work independently. Like the Sea Partners they also stress the need to be environmentally conscious and that we need to take care of our oceans and the marine life. They use the community as a back up and try to participate in community activities, such as beach and ocean clean-ups.

She discussed the internship possibilities in the education department at the Sea Life Park that might be available for me in

the future. I would be able to learn scripts and go out into the schools. After my meeting I was able to walk through the Sea Life Park. I had a really hard time with the captive animals and was really shocked at how small the tanks were. The exhibits were not even allowing the animals to be in their natural habitat. I want to work with sea mammals but in their natural habitat.

I began finding that most places were really willing to explain their programs to me. They gave me really helpful hints on how to start a program. Sam, Resource Manager, at the Department of Land and Natural Resources spoke about not just having a plan but being able to implement the plan. Not all parties agree with how to go about carrying out the plan and may be hesitant, causing major setbacks.

"People can cause the problems and often do in this business" Sam stated. He brought up the fact that money talks. He stressed identifying the goal, getting the facts, and researching the background. Finding out who the "stockholders" are can make or break you. He said that you have to be able to relate to all of them and address their fears. No matter how simple, these are real fears and may inhibit action. Having a focus and being clear on where you want to go, will get you past the obstacles. Knowing what the laws are or at least knowing where to find them is important. He said that knowing how to communicate your needs and to whom those needs should be communicated can help speed up the process of creating a program.

Even people who were unable to meet with me did everything they could. One person, Randy Rush, with Hawaii's Coastal Non-Point

Source Pollution Control Program, Hawaii Department of Health, left all kinds of information for me to pick up and a number to reach him with any questions. Everyone was more than willing to share their jobs and what they did. It was almost like I caused a distraction from the everyday repetition.

At the Waikiki Aquarium, Mark Heckman, Keiki Coordinator, had a neat program that he was using. I observed his keiki program. The keiki program sang a song; it was a cute little song designed for young kids. He then told a story. Trying to make the point of overfishing, he told a saying about the cookie jar, "Don't take the last one. Don't take the biggest or the smallest one. Take the common and right in between." We next visited the aquarium trying to find the animals as we went along. The children had little books that they got a stamp in when they found each animal.

As we were moving throughout the aquarium Mark stressed how it is important to keep the young kids moving and providing snack times in the middle add a necessary fun break. Mark explained how many people thought education was supposed to be entertainment, but that is not the way the world works. At the end of the morning, a playtime provided the touch and feel and activities. Kids were allowed to play with water and plastic toys. This program was great at exposing the children, and their parents, to the aquarium and to some of the common marine life in the Hawaiian area.

Afterwards I was introduced to Dr. Carol Hopper who is the director of the education department at the aquarium. She told me a lot of useful information about starting programs. She said the

funding is hard but there are a lot of places out there. She said that when managing staff it is hard at times not to burn yourself and your staff out. She also gave me a lot of people who have started similar programs or might have the knowledge to help me. Some of these places included:

Jennifer Sites with "Blue Submarine"

Sea Grant Colleges

NMEA (National Marine Educators Association)

Save our Seas, and Sea Scouts

She reminded me that in any project I needed to research all the available funding, the different kinds of program structures and the logistics of having the students come to you or having the presenter go to the students. She also said that for practical reasons I would have to build some flexibility into the program in the scheduling for the events. She suggested that I needed to start small, say a pilot program with one class, and then grow larger. Carol helped me a lot and gave me the final kick in the direction I felt this project needed to go.

Evaluation of Learning

Many speakers are not all that good at drawing the audience in and making them feel like they want to get up and do something. Most speakers don't even make you feel like you can. The idea of presenting a problem and giving some positive action oriented solutions is really effective with audiences.

Now how to get that enthusiasm across is a problem. I don't believe people are born with the skills. You have to work on it, practice it, learn your own style, and project that. In a program I don't want to lose that enthusiasm and love for the material. The desire for education is important too. The big thing would be the need for a volunteer effort or something from the heart but you can't ask for that, it has to be earned.

One thing that I am learning is that lots of organizations are not always knowledgeable of the known or true facts. People can make other people see things any way they want. One really good method is to help people to decide for themselves some things. Methods of responding are not for everyone just like people have different learning styles they also have different abilities of reacting.

It is up to the presenter to best reach that person's ability so they feel stimulated in their own way. I would like to help people find their own way not show them mine. Until someone does it on their own in their own way my way or anyone else's for that matter won't make any difference.

FUTURE PLAN FOR AWARENESS

As I was looking back over everything I learned, I saw a lot of things that I think could make a program strong. Somehow I would like to create a program that others could do that would allow people to learn quick, easy and effective ways of helping teach conservation.

I need to get a hold of the USCG in my area and find out where they would be willing to help me and where I could help them. I need to find any other programs in the area that could use my help or would give me some information. The aquarium would be a great resource in helping develop an ocean awareness program. I sat down and looked at where I could go and possible paths I could take this project.

My Road Map

Phase I

- Explore Outside areas
- find different educational programs
- programs that are experiential hands on
- In Hawaii make contacts

Phase II

- establish contacts in Monterey
- Explore Monterey's resources
- get involved in programs outside
- get involved in programs that go into schools
- Mentor/ Intern

Phase III

- Create a design for program
- get backing (school and outside)
- try test run program (smaller version)

work out bugs
create larger program

Phase IV

Take the program outside
create a package others can use
establish a training program for leaders

These are some of the issues I came up with when I looked into establishing a program.

Potential Organizational Collaborators

1. US Coast Guard
2. Monterey Bay Aquarium
3. CSUMB (service learning and teachers)
4. Friends of the Sea Otters
5. Presidio of Monterey
6. Dive Shops
7. MBARI (Monterey Bay Aquarium Research Institute)
8. MLML (Moss Landing Marine Labs)

Issues to be addressed

1. Pollution
2. Conservation
3. Education and Awareness
4. Possible threats to the ecosystem
5. Man's involvement in the environment
6. Solutions

Audience

1. School-aged Children
2. Community College Students
3. University Students

4. General Public
5. Community
6. Tourists
7. Government

Career Possibilities

- Teach Conservation and /or Marine Science
- Veterinarian for Stranded Marine Mammals
- Develop a program for marine awareness

If I decided to continue with this path beyond college I would need teaching credentials, speech classes, understanding of teledramatic presentations, biology, zoology and other beneficial subjects. I think languages and culture will help so I can present to more than one social structure. This thing would and could also travel. Only problem is I would have to create or find a company that could allow me the freedom to develop and promote a program. (Maybe the United Nations or the U.S. Coast Guard)

I am a dreamer but if I want to I can do this well. This is something I could get people involved in; I just need to learn how to present and how to delegate. I am a leader and I should use that. I can't be too hasty and must be willing to step down or to take a back seat, and most of all I have to work with and accept others' ideas.

I thought about how ludicrous it is for me to try to tackle this whole job in one shot. There is the information, the laws, and the logistics of the program. I know I can't focus on all of it, but I want people to know I looked into it. There is a lot more to this than

meets the eye, and it will probably take me longer than I had planned. I researched the Hawaiian part sufficiently, but I could stand some more hands on practice. Patience's is required to play my cards right and make this come out effectively.

APPENDIX A

RESOURCES

ORGANIZATIONS, AUTHORITIES, SPECIALISTS, PROFESSIONALS

The following is a list of contacts that I have actually spoken to and/or received documents and materials.

California Coastal Commission
45 Fremont St.
Suite 2000
San Francisco, CA 94105

Center for Marine Conservation
California Office/West Coast
Marine Debris Information Office
312 Sutter St. Suite 316
San Francisco, CA 94108
(415)391-6204

Clean Ocean Action
P.O. Box 505
Sandy Hook Highlands, NJ 07732
(908) 872-0111

Earth Island Institute
300 Broadway Suite 28
San Francisco, CA 94133

Friends of He'eia State Park
Carole McLean
P.O. Box 698
Kaneohe, HI 96744 (808) 247-3156

Hawaii Coastal Zone Management Program
Office of State Planning
P.O. Box 3540
Honolulu, HI 96811-3540

Hawaii Department of Land and Natural Resources
Kalanimoku Building
Department of Planning Room 220
1151 Punchbowl
Honolulu, HI (808) 587-0381

NOAA/National Marine Fisheries Service
7600 Sand Point Way, NE
Bin C15700
Seattle, Washington 98115

Non Point Source Pollution Program
Hawaii Department of Health,
Environmental Planning Office
919 Ala Moana Blvd. Rm. 304
Honolulu, HI (808) 956-4348

Oceanic Society
Fort Mason Center, Building E
San Francisco, CA 94123

Sea Life Park Hawaii
Susie Gardner, Education Associate
Education Center
41-202 Kalaniana'ole Hwy #7
Waimanalo, HI 96795
(808) 259-7933

Smithsonian Institution
Office of Elementary and Secondary Education
Art and Industries Building 1163
MRC 402
Washington DC 20560

The Society of the Plastic Industry
Public Relations Department
1275 K St. NW, Suite 400
Washington DC 20005
(202) 371 -5212

Think Earth Distribution Office
5505 East Carson ST. Suite 250
Lakewood CA 90713
(310)420-6814

U.S. Coast Guard, Lt. Commander Melissa Shepard
Commander Sea Partners
Marine Safety Officer
Building 14
Coast Guard Island
San Francisco, Alameda CA 94501
(510) 437-3073

U.S. Environmental Protection Agency
Public Information Center
PM-211B
401 M St. SW
Washington DC 20460

Waikiki Aquarium
Education Department
Dr. Carol Hopper
2777 Kalakaua Ave.
Honolulu, HI 96815
(808) 923-9741

CURRICULUM MATERIALS, PUBLICATIONS, BOOKLETS

The following materials are ones that I have used or previewed for future activities

An Educator's Guide to Accompany the Exhibit, Bishop Museum, Ocean Planet, Bishop Museum Education Department 5/97

Art to Zoo- Teaching with the Power of Objects, Smithsonian Institution, Sept/Oct 1995
Published by Smithsonian Office of Elementary and Secondary Education , Washington DC 20560

Board of Water Supply:Honolulu , Activity Book, Donald Bucholz, 1990

Don't Teach Your Trash to Swim, Coloring book, U.S. Coast Guard. Sea Partners Campaign

Get The Drift, Project WILD, Boulder CO>

Interdisciplinary Marine Science Activities, Ocean Planet, The traveling exhibition May 17-December 13, 1998, Office of Elementary and Secondary Education, Washington DC 20560

Marine Pollution Laws and Regulations, general features of these laws, primary authorities to be aware of for Sea Partners

Ocean Planet Exhibit. Visitation Student Activity worksheets, Tyana Thayer

Ocean Planet, Smithsonian Institutions Magazine, A Time Mirror Magazines Publication New York, NY 1995

Office Snook Coloring Book, Water Pollution Educational Coloring and Activity Book, Jennifer Sevin, Project Coordinator, 1993, U.S. Department of Transportation

Officer Snook Program, U.S. Coast Guard Campaign, U.S. Coast Guard Marine Safety Office

Ranger Rick's Nature Scope, Pollution: Problems and Solutions, National Wildlife Federation, Washington DC 1990

Relationships of Living Things, Teacher's Planning Guide, MacMillian/Mc Graw-Hill School Publishing CO New York 1993

Rescue Mission Planet Earth, A children's edition of Agenda21, United Nation's Children's Fund UNICEF, Kingfisher Books, London 1994

Stop Water Pollution, Help Officer Snook, Curriculum Booklet, Jennifer Sevin, Project Coordinator, Officer Snook Program, U.S. Coast Guard 1993

Think Earth, Environmental Education Program, Grade 4 unit, Waste Reduction, Educational Development Specialists 1993

Turning the Tide on Trash, A Learning Guide on Marine Debris EPA, Environmental Protection Agency,, Easter Research Group Inc., Lexington, Mass 1992

U.S. Coast Guard, Sea Partners Campaign "Train the Trainer Material",

Woodsy Owl, Leader's Guide, USDA Forest Service, Washington DC, "Give a Hoot, Don't Pollute

REFERENCES, BOOKS AND REPORTS

These materials are the ones I have been given by various people or I have personally purchased

A Citizen's Guide to Plastics In the Ocean; More than a Litter Problem, Kathryn J. O'Hara, published Center for Marine Conservation Inc., Washington DC 1994

All About Beach Clean-ups, Linda Maraniss, published by The Center for Marine Conservation, Washington DC 1993

Fleet Oceanographic and Acoustic Reference Manual, Naval Oceanographic Office, Commander Naval Oceanography Command June 1992

Hawaii Fishing Regulations, Division of Aquatic Resources, Department of Land and Natural Resources, Kalanimolu Building Honolulu, HI 96813 July 1996

Hawaii's Coastal Nonpoint Pollution Control Program, Management Plan, Vol. 1, Office of State Planning, Honolulu HI, 96811-3540 June 1996

Managing Oily Waste and Garbage from Ships, Coast Guard, Marine Environmental Protection Division, Washington DC Feb. 1994

Navigation Rules, U.S. Department of Transportation, U.S. Coast Guard 1990

Ocean Planet, Writings and Images of the Sea, Peter Benchley, Publishers, Harry N. Abrams, Inc., Times Mirror Magazines, Inc., Smithsonian, 1995

Pocket Guide to Marine Debris, EPA Center for Marine Conservation 1993

Save the Earth: An Action Handbook for Kids, Betty Miles, Alfred A. Knopf, New York, NY 1991

"Sea Partners Update", The Coast Guard Reservist, July 1997

The Living Ocean, Understanding and Protecting Marine Biodiversity, Boyce Thorne Miller, John G. Catena, Island Press 1991

The Snorkel's Guide to the Coral Reef, Paddy Ryan., University of Hawaii Press, Honolulu 1994

BROCHURES/ FACT SHEETS/ INFORMATIONAL PACKETS

All this materials I have collected from all the various resources

Activity Worksheets for Waikiki Aquarium with taped tour through the aquarium written by Tyana Thayer

“Alternatives to Household Hazardous Products”, Hawaii Department of Health, Pollution Prevention Program, Honolulu HI

“Clean water for the Mountains to the Sea”, University of New Hampshire/University of Maine , Sea Grant College Program

Coastal Connection, Spring Issue 1994, Center for Marine Conservation
Coastal Nonpoint Source Pollution, EPA/NOAA

Clean Ocean Actions- Ten tips for Students, Clean Ocean Action Group

“Coral and Live Rock”, Laws of Hawaii, Department of Land and Natural Resources, Division of Aquatic Resources June 1993

“Daily Recycler”, The Mechanics of recycling wheel U.S. Coast Guard

Dumping of Plastics Prohibited: Requirements of MARPOL Annex V, Marine School of Law Institute, University of Maine School of Law, Maine 04102 Oct 1990

“How’s the Water ?”, Citizens Report Form for Water Pollution, U.S. Coast Guard Headquarters, Marine Environmental, Protection Division, Washington DC

“Hawaiian Reef Fish”, Ocean Sports Distributors, Hawaii 1993

“Hawaiian Reef Life”, Plastic placard Ocean Sports Distributors, Hawaii 1995

“Kaneohe Bay Marine Education Program”, Friends of He’eia State Park, Kaneohe HI

“Marine Education Curricula: Selected References”, Waikiki Aquarium Education Department

“Nonpoint Source Pollution: What Can You Do?” Nonpoint Source Pollution Management Program, Hawaii Department of Health, Environmental Planning Office

“Once It’s Gone , caring about the Environment”, P. 64-68 Creative Classroom, Mar/April 1997

Plastics and Marine Debris: Solutions through Education, Society of the Plastics Industry 1994

Pollution Discharge Restrictions Aid, MARPOL 73/78 Annex V, abbreviated guidance and placard

“Pollution in Our Waters”, U.S. Coast Guard Marine Safety Office, Honolulu HI

“Sea Grant Colleges” Learning about Marine-Related Careers and Research activity, Sea Grant Abstracts Vol. 9 (2-3) 1994

“Selected Readings: Marine Life”, Waikiki Aquarium Educational Department

“Self-Guided Discoveries at the Waikiki Aquarium”, Education Department, Waikiki Aquarium

Strategic Plan 1995-2000, Department of Oceanography Texas A&M University Working Document June 19, 1995

Ten Ways a Diver Can Protect the Underwater Environment, Project A.W.A.R.E. (Aquatic World Awareness, Responsibility and Education)

U.S. Coast Guard National Pollution Funds Center, June 1993, Virginia 22203

“Waikiki Aquarium Guidelines for Being a Good Reef Visitor”, Waikiki Aquarium Educational Department

You Can Make a Ton of Difference, U.S. EPA Office of Solid Waste (EPA/530 F-92-003)

AUDIOVISUAL MATERIALS

All of the following materials I have purchased or they have been given to use in the development of my program.

America's Environment : Can We Clean-up Our Act? Scholastic NBC News 30 mins 1994

Coastal Clean-up Slide Show, Center for Marine Conservation, 58 slides

Dive to the Coral Reefs, PBS Reading Rainbows, GPN Nebraska, ETV, Network 60 mins 1992

Help Save Planet Earth, Easy Ways to make a Big Difference, American Oceans Campaign, Hosted by Ted Danson 1hr. 11mins 1990

Malama Ana I Ke Kai, Protecting the Sea, Sea Life Park Education Center

Marine Debris and Entanglement Slide Show, Center for Marine Conservation, 48 slides,

The Lorax, by Dr. Seuss, Random House, New York, Cassette narrated by Ted Danson, 15 min 24 sec 1992

Think Earth, Environmental Education Program, Educational Development Specialists, 7 mins 1991

POSTERS

Flukes and Flippers, Sea Mammals, Earth Island Institute and Free Willy 2, Bumble Bee, Seafoods Inc., Dolphin Safe and Whale Wise 1995

Help Control Nonpoint Source, Hawaii Department of Health Environmental Planning Office Nonpoint Source Pollution Program 1994

How's the Water, Center for Marine Conservation, Pollution Prevention Program, 1725 DeSales St. N.W. #500 Washington DC 20036

How We use and Affect Galveston Bay, Environmental Protection Agency and the State of Texas, National Estuary Program

Oahu Nature Bound, Conservation through Education, Waimae Valley and Sea Life Park Hawaii

Protect Our Coastal Environment, Healthy, damaged or destroyed-The choice is yours, South Pacific Regional Environment Program

Save Our Seas: Help Stop Marine Debris! U.S. EPA (EPA 842-H-92-001)

Stow It, Don't Throw It! It's the Law! Nancy Munto, Saltwater Productions

Trash: Where Does It Go? Think Earth, Environmental Education Program, Waste Reduction Unit, Educational Development Specialists 1993

Water: Where Does It Go? Think Earth, Environmental Education Program, Waste Reduction Unit, Educational Development Specialists 1993

10 Ways to Help: Think Earth, Think Earth, Environmental Education Program, Waste Reduction Unit, Educational Development Specialists 1993

200 Million Tons of Trash: What can we do with It? Keep America Beautiful, Inc.

STICKERS

Don't teach your Trash to Swim, U.S. Coast Guard

Garbage Dumping Restrictions, Center for Marine Conservation placard

Sea Partners, I Report Marine Pollution, 800-424-8802

Sea Partners Stop Water Pollution Help Officer Snook

Sea Partners- U.S. Coast Guard T- Shirt appliqué

CHILDREN'S BOOKS AND MAGAZINES

The following books are ones that I have used or pre-viewed.

Activity pages from Ms. Ingrid's 5th grade class on tides, fish, coastline

Conservation and Pollution, Laurence Santrey, Troll Associates, New Jersey 1985

Discover Hawaii's Marine Mammals, Katherine Orr, Island Heritage Publishing 1995

Don't Pollute, Berenstein Bears, book and cassette

Ho'omalulu I Ke Kai, protecting the Sea, Activity Book, International Year of the Reef, Hawaii Coastal Zone Management Program 1997

Make Your Own Coral Reef, Damian Johnston, Lodestar Books, Penguin Books, New York 1993

Maui, Maui, Stephen Cosgrove, illustrated Robin James, A Serendipity Book, Price Stern Sloan Inc., Los Angeles 1995

Nature Hide and Seek, Oceans, John Norris Wood, Alfred A Knopf Inc., New York 1985

Oahu's Water Supply, Honolulu Board of Water Supply 1983

Ocean Wildlife, Joshua Morris, The Reader's Digest Assoc. Inc., 1993

Protecting Our World, Felicity Brooks, EDC Publishing, Oklahoma 1991

Relationships of Living Things, Mary Atwater, Mac Millian/McGraw Hill, New York, 1993

Rescue Mission: Planet Earth, Children's Activity Booklet, Project Learning Tree

Scholastic News: Recycling Helps the Earth, Vol. 50, No. 23, April 15, Scholastic Inc., 1994

Sea Animals, Amy Ericksen, Chronicle Books, 1995

The Environment and Conservation, Martyn Bramwell, Prentice Hall, Lionheart Books, New York 1992

The Lorax, Dr. Seuss, Random House, New York 1971

The Magic School Bus, On the Ocean Floor, Joanne Cole, Scholastic Inc. 1992

The Seashore, Jane Walker, The Millbrooke Press 1995

Under the Sea, Jennifer Dussling Wildlife Conservation Society, Grosset and Dunlap, Publishers 1995

Weekly Reader: Can Coral Reefs Be Rescued? Vol. 49, issue 8, Weekly Reader Corporation, Nov. 4, 1994

50 Simple Things Kids Can Do to Save Earth, The Earth Work Group, John Javna, 1990

APPENDIX B

VISITATIONS/OBSERVATIONS/INTERVIEWS

U.S. Coast Guard, Department of Safety and Education- Sea Partners Campaign, Petty Senior Officer David Kokata

U.S. Cost Guard, Reserve Officer, Sea Partners Campaign, Tim Lucas

Bishop Museum-Ocean Planet Teacher Workshop, Teaching with Storytelling and Objects

Ocean Planet Exhibit, Bishop Museum, A Smithsonian Institution Exhibit- A multi-media exploration into the wonders of the sea, a traveling exhibition touring 11 U.S. cities ,May to December 1997

Bishop Museum Monday Evening Program Series:

June 30-Aquaculture in the 21st century

July 14-Follow that Fish! Shark and Fish Tracking

July 21-Creating Sustainable Communities

July 28-Diving into the Twilight Zone

Aug. 4 -Submarine Exploration to the North Pole

Sea Life Park- Education Department,Susie Gardner, Education Associate

Waikiki Aquarium, Dr. Carol Hopper, Director of Education

Coastal Tide Pool, Punahoe Elementary School, Tim Lucas ,Assistant Director

Hawaiian Electric Company, John Williams, Environmental Specialist

Department of Land and Natural Resources (DLNR) Office of State Planning, Sam, Kalanimoku Building

Hawaii Department of Health, Environmental Planning Office, Nonpoint Source Pollution Program, Randy Rush

U.S. Coast Guard , Sea Partners Outreach School Programs, Punahou School, Iolani School and the Hokulani Elementary School

Bishop Museum, Ocean Planet Teacher Workshop, Teaching with Storytelling and Objects

APPENDIX C

TIME LINE

Time table With Progress Reports:

June 19: Proposal due

June 21: Teachers Workshop on the Bishop Museum's exhibit "Ocean Planet."

June 23: Registration for class due.

June 30: Begin Class

June 30: Night lecture on the Bishop Museum's exhibit. "Aquaculture in the 21st Century"

July 8: Acquired knowledge of the laws pertaining to pollution and conservation, and infrastructures of various organizations and teaching programs.

July 9: One page thoughts on preliminary findings.

July 14: Night lecture on the Bishop Museum's exhibit. "Follow that Fish! Shark & Fish Tracking"

July 15: Begin looking at various methods of teaching.

July 17: Outline of different observed methods of presenting the conservation Idea.

July 21: Night lecture on the Bishop Museum's exhibit. "Creating Sustainable Communities"

July 25: Begin finding different ways of teaching at different levels and researching the various organizations' ways of "reaching" the desired audience. Look at connection between actual research and teaching material.

July 28: Night lecture on the Bishop Museum's exhibit. "Diving into the Twilight Zone"

July 29: Begin looking at the "Conservation continuum." This is a concept that the Monterey Bay Aquarium teaches their guides in order to help the visitors continue their learning and awareness of conservation in the environment.

July 31: Start working on putting the pieces together. evaluating the methods that effectively "reach" the desired audience.

August 1: Page on ideas of what works and what doesn't, Ideas on why, and the beginning stages of a proposal.

August 3: Begin focusing on the completed idea.

August 5: Complete a rough draft of proposal and get input.

August 8: Incorporate input and prepare final presentation with what I learned about what worked and what didn't. Include where I think I stand in the goal towards having a feasible Idea and program proposal.